

REMARKS

Please reconsider the application in view of the foregoing amendments and the following remarks.

Status of Claims

Claims 1-12 are pending in the present application. Claims 1 and 4-6 are herein amended. Claims 2 and 3 are herein cancelled. No new matter has been presented.

Information Disclosure Statement

Applicants note with appreciation the Examiners thorough consideration of the references cited in the Information Disclosure Statements (IDS) submitted on February 2, 2006 and October 16, 2008.

Claim Rejections – 35 U.S.C. §112

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims have been amended to overcome this rejection.

Because the scope of claims 1-6, as amended, can be ascertained with reasonable certainty when read in light of the specification, Applicants submit that claims 1-6 particularly point out and distinctly claim the invention. Accordingly, Applicants request that the rejection under 35 U.S.C. 112, 2nd paragraph, be withdrawn.

As to the Merits

As to the merits of this case, the Examiner sets forth the following rejections:

Claim 1 was rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application Publication No. 1336436 to Sugimoto.

Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to Sugimoto in view of U.S. Patent No. 5,353,821 to Franklin.

Claim 3 was rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to Sugimoto in view of U.S. Patent No. 5,353,821 to Franklin as applied to claim 2 above, and further in view of U.S. Published Patent Application No. 2003/0205246 by Christman et al.

Claims 4-6 were rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application Publication No. 1336436 to Sugimoto in view of U.S. Patent No. 5,895,763 to Edstrand et al.

Each of these rejections is respectfully traversed.

Claim Rejections – 35 U.S.C. §102

Differences between the present invention and the invention in the cited reference:

When contrasting the invention according to claim 1 with the invention disclosed in EP1336436 to Sugimoto (hereafter referred to as "cited invention"), the cited invention does not include the following limitations.

- i) If the detected cleaning fluid pressure (the cleaning fluid pressure inside the fluid delivery pipe near the drainpipe) exceeds a predetermined pressure, running a cleaning fluid recovery process of stopping supply of cleaning fluid to the drainpipe; and opening a portion of the fluid drain line to the atmosphere to pass the cleaning fluid from the drainpipe through the fluid recovery pipe and recover the cleaning fluid into the cleaning fluid tank.
- ii) After running the cleaning fluid recovery process, restarting the cleaning process.
- iii) If during the cleaning process the cleaning fluid pressure inside the fluid delivery line exceeds the predetermined pressure, repeatedly running the cleaning fluid recovery process and cleaning restart process.
- iv) Once the number of cleaning-fluid-recovery-process run cycles reaches a predetermined count, terminating all processes.

Sugimoto, in paragraphs [0057] - [0058], discloses as follows:

“... the inner pressure of the drainage pipe 91 increases to a high level, resulting in leakage of the cleaning liquid L from the drainage pipe 91. Therefore, the emergency feed-back valve 45 of the feed-back pipe 40 is opened, whereby the cleaning liquid L in the feed pipe 30 is fed back into the reservoir tank 20 through the feed-back pipe 40. Thus, the cleaning liquid L is prevented from flowing into the drainage pipe 91 to prevent the inner pressure of the drainage pipe 91 from increasing to a high level. Further, the outside air introduction valve means 61 of the gas suction pipe 60 is opened and the gas introduction preventing valve 62 is closed to introduce the outside air into the drainage pipe 91 from the outside air introduction valve means 61 through the gas discharge pipe [an error in writing

the gas suction pipe] 60. Thus, the inner pressure of the gas discharge pipe [an error in writing the drainage pipe] 91 is not increased higher than the atmospheric pressure.”

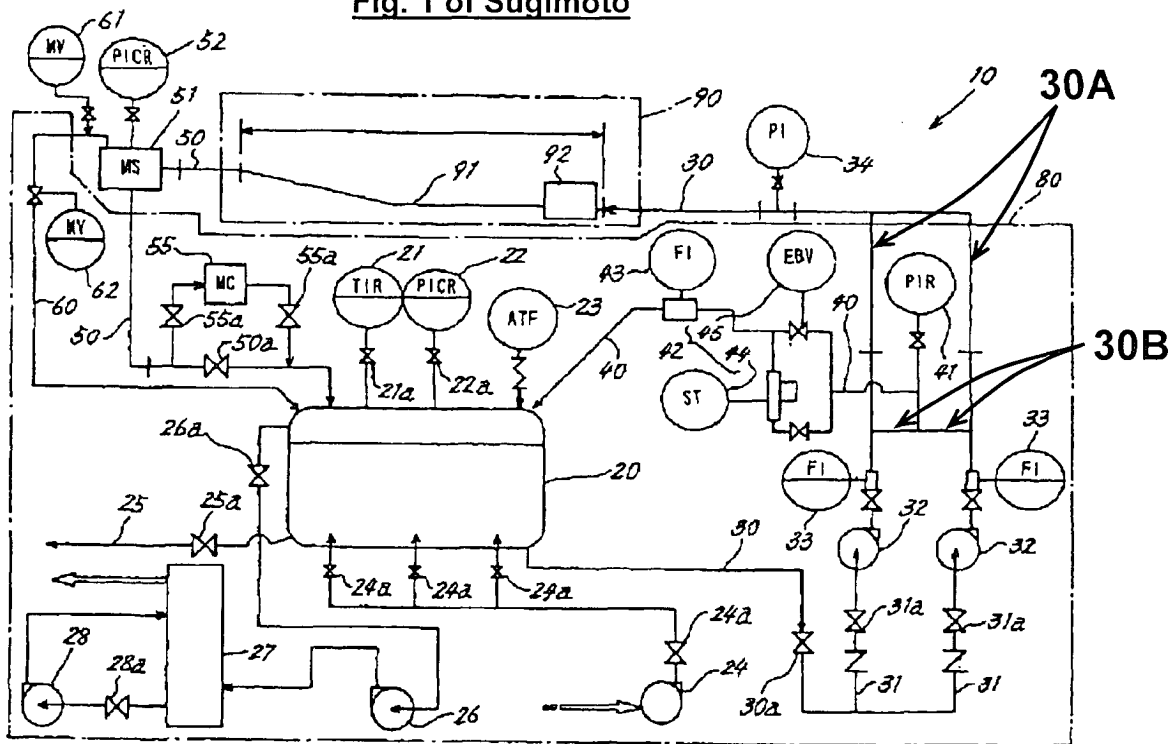
However, in the cited invention, when the pressure inside the drainage pipe 91 is high, simply the emergency feed-back valve 45 is opened, and the feed pump means 32 remains driven.

Therefore, the cleaning liquid L fed from the feed pump means 32 is partly fed back into the reservoir tank 20 via a pipe 30B branching from a main pipe 30A of the feed pipe 30. However, the rest of the cleaning liquid L remains fed to the main pipe 30a of the feed pipe 30. Therefore, the pressure inside the drainage pipe 91 cannot be reduced quickly. (See the following figure, Fig. 1 of Sugimoto. The reference numbers 30A and 30B are added by the applicants.)

Further, the outside air introduction valve means 61 of the gas suction pipe 60 is opened and the gas introduction preventing valve means 62 is closed, thereby, bringing the gas separation means 51 to the atmospheric pressure. At this time, the pressure inside the drainage pipe 91 rises, for the pressure inside the gas separation means 51 should have been at a negative pressure before then. Also from this aspect, the pressure inside the drainage pipe 91 cannot be reduced quickly.

Thus, in the method of the cited invention, the pressure inside the drainage pipe 91 cannot be reduced quickly. Therefore, the cleaning liquid L is not completely prevented from leaking from the drainage pipe 91.

Fig. 1 of Sugimoto



As against this, in the invention according to claim 1, if the cleaning fluid pressure inside the fluid delivery line near the drainpipe exceeds a predetermined pressure, supply of cleaning fluid to the drainpipe is stopped, and a portion of the fluid drain line is opened to the atmosphere, thereby, the cleaning fluid in the drainpipe which leads to the cleaning fluid tank brought to the negative pressure is instantly recovered into the cleaning fluid tank through the fluid delivery line and the pressure inside the drainpipe is instantly reduced to a predetermined low pressure.

Therefore, in the invention according to claim 1, compared with the cited invention, it is possible to completely prevent the cleaning fluid from leaking from the drainpipe.

Further, in the invention according to the claim 1, after running the cleaning fluid recovery process, the cleaning process is restarted, thereafter if during the cleaning process the cleaning fluid pressure inside the fluid delivery line exceeds the predetermined pressure, the cleaning fluid recovery process and cleaning restart process are run repeatedly, and once the number of cleaning-fluid-recovery-process run cycles reaches a predetermined count, all processes are terminated.

The scale on the inner wall of the drainpipe is gradually dissolved and removed through contact with the cleaning fluid. Therefore, when a predetermined time elapses after recovering the cleaning fluid, each of iteration of the cleaning process should result in less scale and therefore a larger conduit inside the drainpipe.

Therefore, when the cleaning process is restarted after completing the cleaning fluid recovery process, there is a possibility that the cleaning process can be run without the cleaning fluid pressure inside the fluid delivery line rising above the predetermined pressure, and, by restarting the cleaning process in this way, the scale can be completely dissolved and removed.

Additionally, when the scale is hard deposited on the inner wall of the drainpipe, the cleaning fluid pressure inside the fluid delivery line can exceed the predetermined pressure even after restarting the cleaning process. However, in this case, the scale can be dissolved and removed by alternately repeating the cleaning fluid recovery process and cleaning process. On the other hand, if the pressure inside the fluid delivery line becomes higher than the

predetermined pressure even after repeating these processes predetermined times, there is probably a problem such as the drainpipe being clogged by some object. Therefore, in the invention according to claim 1, in this case, the control device determines that it is impossible to remove the scale, and terminates all processes.

Thus, in the invention according to claim 1, it is possible to absolutely prevent leakage of the cleaning fluid, even in the case where, for example a passenger plane, it is not at all allowed that the body is damaged by leakage of cleaning fluid. Therefore, even if the scale cannot be removed by one time process, it is possible to retry the cleaning process without worries, and remove the scale completely.

As against this, in the cited invention, it is impossible to absolutely prevent leakage of cleaning liquid. Therefore, when the scale cannot be removed by one time process, there is high risk of leakage of the cleaning liquid, and it is dangerous to retry the cleaning process, and therefore, there is a case where the scale cannot be completely removed.

As described above, the invention according to claim 1 includes new components (limitations) which Sugimoto does not disclose, and has a characteristic and outstanding effect.

Thus, in view of the foregoing, Applicants submits that the invention according to claim 1 is patentably distinguishable from the cited reference of Sugimoto. Therefore, claim 1 is not anticipated by Sugimoto. As such, withdrawal of this rejection is thus believed to be in order.

Claim Rejections – 35 U.S.C. §103

Dependent claims 2-6 are also patentable by virtue of their dependency on claim 1, i.e., they incorporate by reference at least the distinguishing features of claim 1.

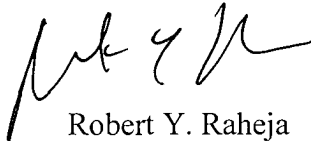
Conclusion

The Claims have been shown to be allowable over the prior art. Applicants believe that this paper is responsive to each and every ground of rejection cited in the Office Action dated July 21, 2009, and respectfully request favorable action in this application. The Examiner is invited to telephone the undersigned, applicants' attorney of record, to facilitate advancement of the present application.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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